

Region 4 State & Local Air Director's Meeting – Fall 2011

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Today's Topics



- National Ambient Air Quality Standards (NAAQS) Update
- Nitrogen Dioxide (NO₂) and Sulfur Dioxide (SO₂) Challenges in Permitting
- Southeast Diesel Collaborative

The Clean Air Act Framework



- **EPA sets NAAQS for pollutants harmful to public health & environment**

- **Ozone**
- **Particulate matter**
- **Lead**
- **Carbon monoxide**
- **Nitrogen Dioxide**
- **Sulfur Dioxide**



- **EPA must review NAAQS every 5 years after advice from Clean Air Science Advisory Committee**

Primary vs. Secondary



- Primary: Health-based at level judge to be “requisite to protect public health with an adequate margin of safety.”
- Secondary: “requisite” to protect public welfare from “any known or anticipated adverse effects associated with the pollutants in ambient air” including effects on vegetations, soils, water, wildlife, buildings, national monuments and visibility.

Considerations for NAAQS



- Setting NAAQS: scientific information on health and/or environmental effects (not cost)
- Achieving NAAQS: account for cost, technical feasibility, time needed to attain

<http://www.epa.gov/ttn/naaqs/>

1-Hour NO₂



- January 22, 2010 (effective April 12, 2010) – Primary NO₂ NAAQS strengthened.
 - Secondary standard under separate review consideration.
 - Proposed July 11, 2011; public comment period ended October 10, 2011
 - Proposed to retain existing long term standard
 - Proposed to set short term standard same as primary
- New 1-hour standard at 100 parts per billion (ppb)
- Retained annual standard at 53 ppb.

www.epa.gov/air/nitrogenoxides

Anticipated Timeline for Designation Process

Milestones	2010 1-Hour NO₂ NAAQS Dates
Final decision on level of NAAQS	January 22, 2010
State/Tribal Recommendations Due	January 25, 2011
EPA Response	June 28, 2011 (120 day consultation period)
State and Tribes provide additional information	Prior to final designations
Final Designations -Expect Region 4 (all States) to be Unclassifiable/Attainment	November 2011 (due date is January 22, 2012)

1-Hour SO₂



- June 2, 2010 (effective August 23, 2010) – Primary SO₂ NAAQS strengthened.
 - Secondary standard under separate review consideration.
 - proposed July 11, 2011; public comment period ended October 10, 2011
 - Proposed to retain existing long term standards for both
 - Proposed to set short term standards same as primary
- New 1-hour standard at 75 ppb.
- The existing 24-hour & annual primary SO₂ standard are revoked by this rule.

www.epa.gov/air/sulfurdioxide

Anticipated Timeline for Designation Process

Milestones	2010 1-Hour SO₂ NAAQS Dates
Final decision on level of NAAQS	June 2, 2010
State/Tribal Recommendations Due	June 3, 2011
EPA Response -currently working with States on area boundaries	No later than February 3, 2012 (120 day consultation period)
State and Tribes provide additional information	Prior to final designations
Final Designations	No later than June 3, 2012

NO₂ & SO₂ Standards – Challenges in Permitting for Region 4 State/Local Permitting Authorities

--Examples of current actions being delayed or withdrawn due to complications in meeting the short term standards for NO₂ or SO₂

Southeast Diesel Collaborative

EXPANDING THE SOUTHERN CONNECTION
Energy Environment Economics



"Creating a legacy of cleaner diesel engines"



Southeast Diesel Collaborative

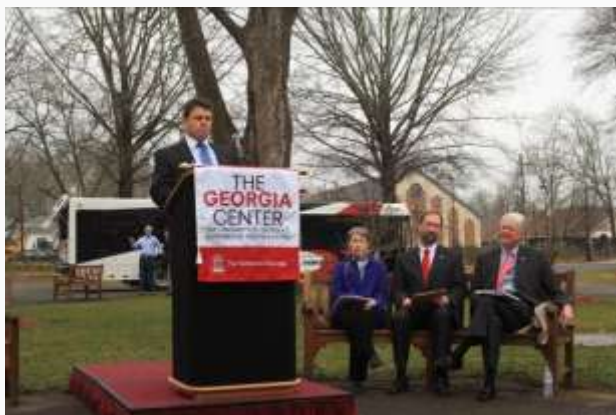
- **Voluntary public and private partnership** formed in 2006, focused on clean diesel opportunities that incorporate **Energy**, the **Environment** and **Economics**
- Over **900 partners** from government, industry, state/local groups
- Focus Based strategy
 - Freight
 - Non-road
 - Public Fleets
- Jun '11 was 6th Annual Partners meeting; 2012 Workshops-Alt fuels, Airports, Military



Accomplishments



- Number of Projects: **426**
 - Number Engines: **50,311 engines**
 - Emissions Reduced: **515,980 tons of emissions**
 - Children Impacted: **14,000+ buses ~ 4,100,000 children**
 - Funding
 - EPA Grants: ~ \$65 million (DERA, ARRA, Mobile Source, RARE)
 - Partner Investment (leveraged): ~ \$657 million
 - FY 2011 \$4.1 million for 4 projects, States \$192K each
- MORE? Go to www.southeastdiesel.org***



Questions?

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APPENDIX

- Additional NAAQS slides for reference follow

Health Impacts for NAAQS



- **Lead** - Can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems & the cardiovascular system.
- **PM_{2.5}** - Small particles less than 2.5 micrometers in diameter pose the greatest problems, because they can get deep into lungs & some may even get into the bloodstream affecting lungs & heart health.
- **NO₂** - Current scientific evidence links short-term exposures, ranging from 30 min. to 24 hrs, with adverse respiratory effects including airway inflammation in healthy people & increased respiratory symptoms in people with asthma.
- **SO₂** - Current scientific evidence links short-term exposures ranging from 5 min. to 24 hrs, with an array of adverse respiratory effects including broncho-constriction & increased asthma symptoms.
- **O₃** - Current scientific evidence links exposure to lung function decrement, asthma attacks and even death.

Sources of Pollution



Wood-Burning Stoves



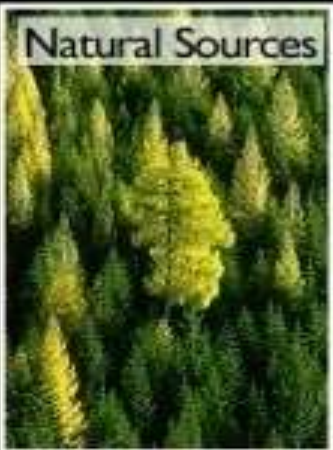
Power Plants



Heavy Duty Diesel Engines

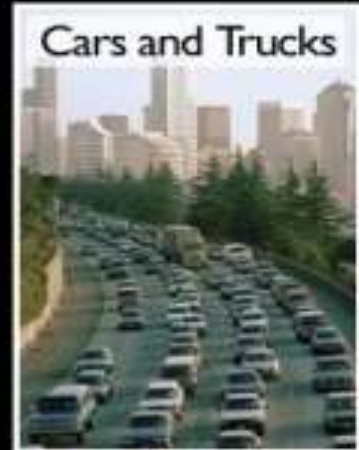


Natural Sources



**Multiple
Sources of
Pollution**

Cars and Trucks



Non-Road Vehicles



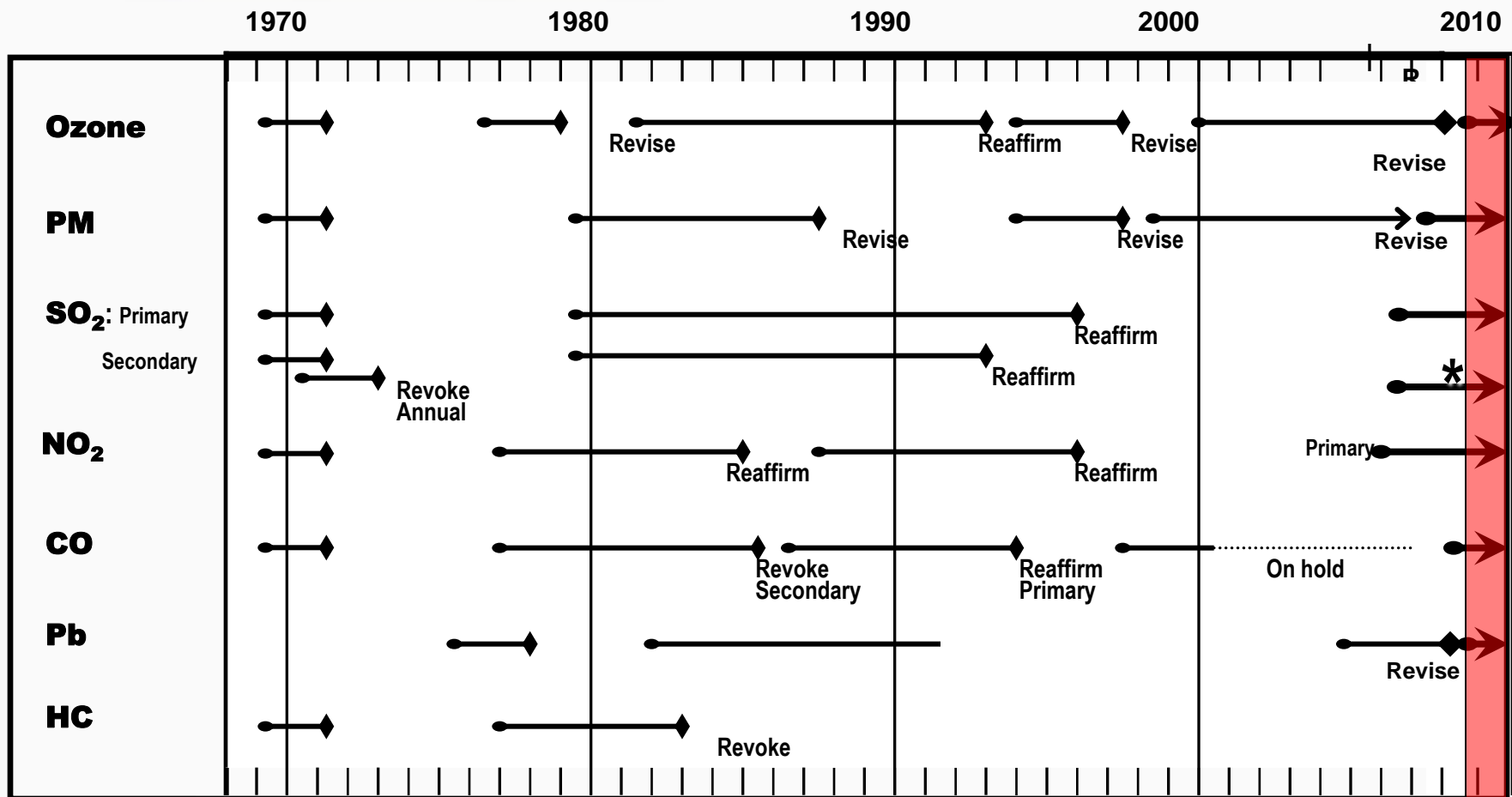
Forest Fires



Industrial Sources



Timeline: Past & Current NAAQS Reviews



* Joint NO_x/SO_x secondary NAAQS review – 2006-2010

Current Schedule for Ongoing NAAQS Reviews

MILESTONE	POLLUTANT						
	PM	NO2/SO2 Secondary	O ₃	Lead	NO2 Primary	SO2 Primary	CO
Proposed Rule	TBD	<u>July 12, 2011</u>	October 2013	Jan 2014	June 2015	Dec 2015	May 2016
Final Rule	TBD	<u>Mar 20, 2012</u>	July 2014	Nov 2014	Mar 2016	Sept 2016	Feb 2017

NOTES:

Underlined dates indicate court-ordered or settlement agreement deadlines

EPA is currently moving forward to implement the 2008 ozone standard (see <http://www.epa.gov/air/ozonepollution/>).

For more information see: <http://epa.gov/ttn/naaqs/>

Glossary



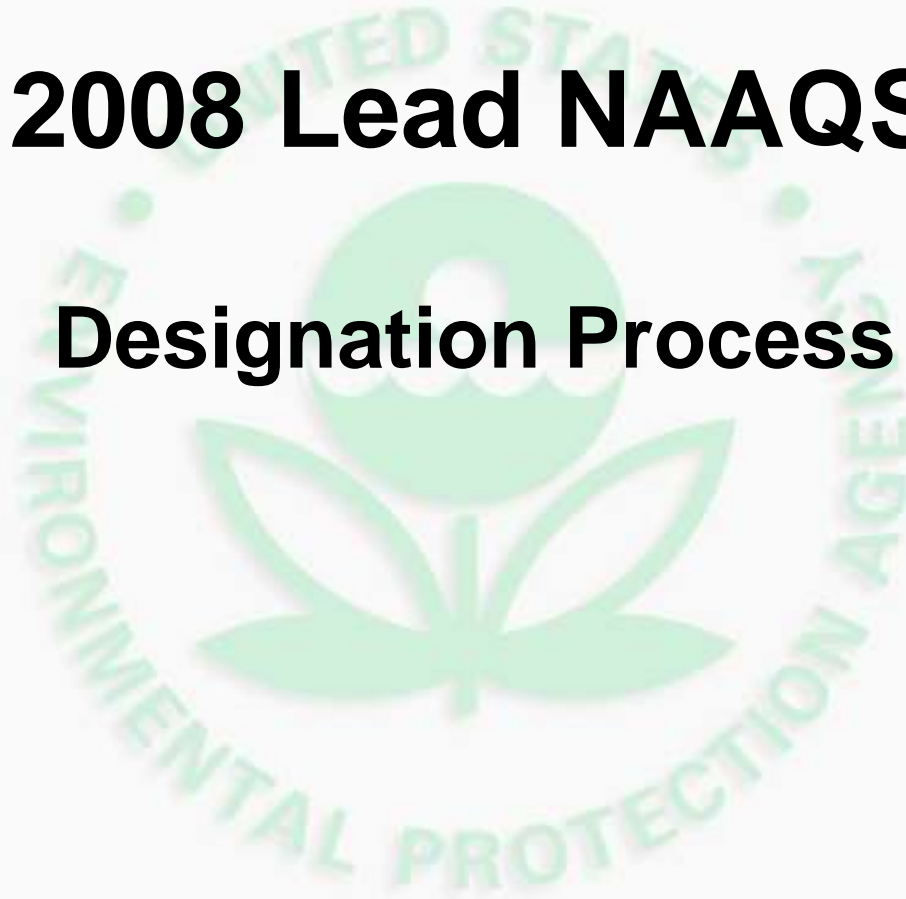
- Attainment - area that is in compliance with the NAAQS.
- Nonattainment – area that is out of compliance with the NAAQS.
 - = area that has violating monitor or that contributes to an area with a violating monitor.
- Unclassifiable – area that has incomplete data or monitoring data issues.

Recap of NAAQS Designations Schedule

	Lead	NO₂	Ozone	SO₂
EPA 120-day Consultation Period	June 14, 2011	June 28, 2011	December 15, 2011	February 2012
Final Designations	No later than November 15, 2011	November 2011	Spring 2012	June 2012

2008 Lead NAAQS

Designation Process



2008 Lead (Pb) NAAQS



- October 15, 2008 (effective November 12, 2008) – Pb NAAQS strengthened.
 - Lowered from $1.5 \mu\text{g}/\text{m}^3$ to $0.15 \mu\text{g}/\text{m}^3$
 - Designations done in two phases to allow for the consideration of new monitoring networks
 - 3 nonattainment areas in Region 4 for the first phase (portions of Pike Co., AL; Hillsborough Co., FL; and Sullivan Co., TN)
 - No nonattainment areas in Region 4 anticipated for the second phase.

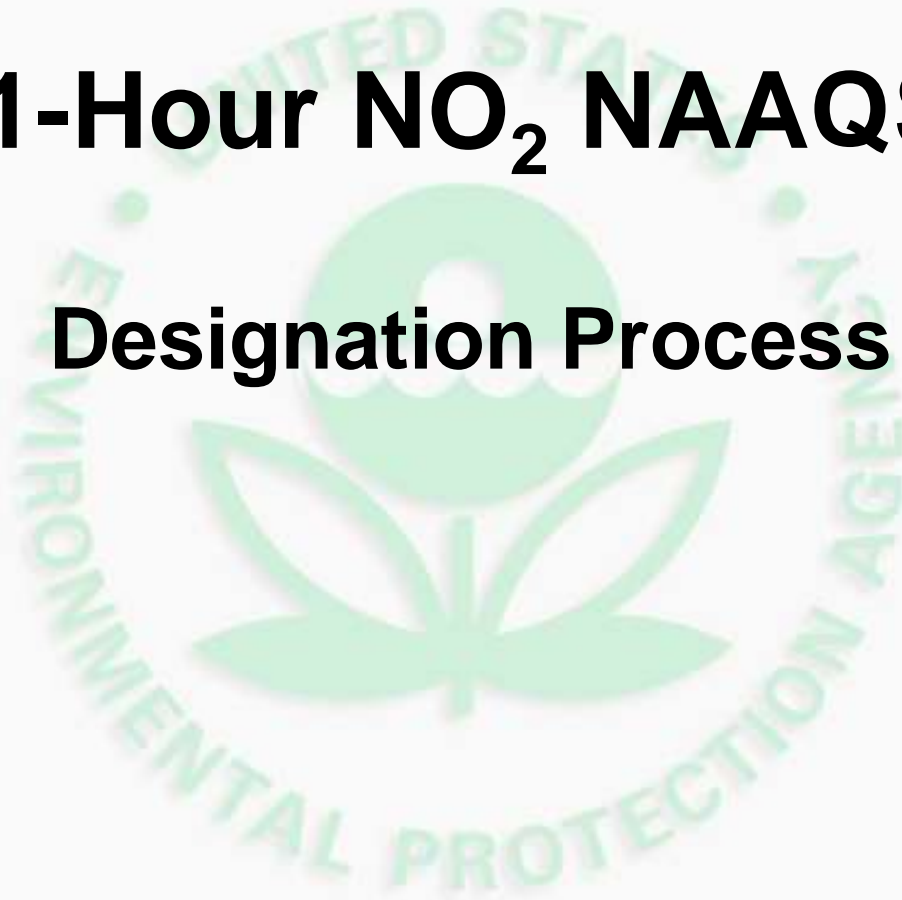
www.epa.gov/air/lead

2008 Lead Anticipated Timeline

Milestone	Date	
Signature—Final Rule	October 15, 2008	
State Monitoring Network Plans to EPA	July 1, 2009	
State Designation Recommendations to EPA	No later than October 2009	
Monitoring Network Implementation	All source-oriented monitors operational by January 1, 2010; All nonsource-oriented monitors operational by Jan. 1, 2011.	
Final Designations	<i>For areas with existing monitoring networks and sufficient data:</i>	For areas without existing monitoring networks / without sufficient data:
	<i>November 16, 2010</i>	No later than November 16, 2011

1-Hour NO₂ NAAQS

Designation Process



1-Hour NO₂



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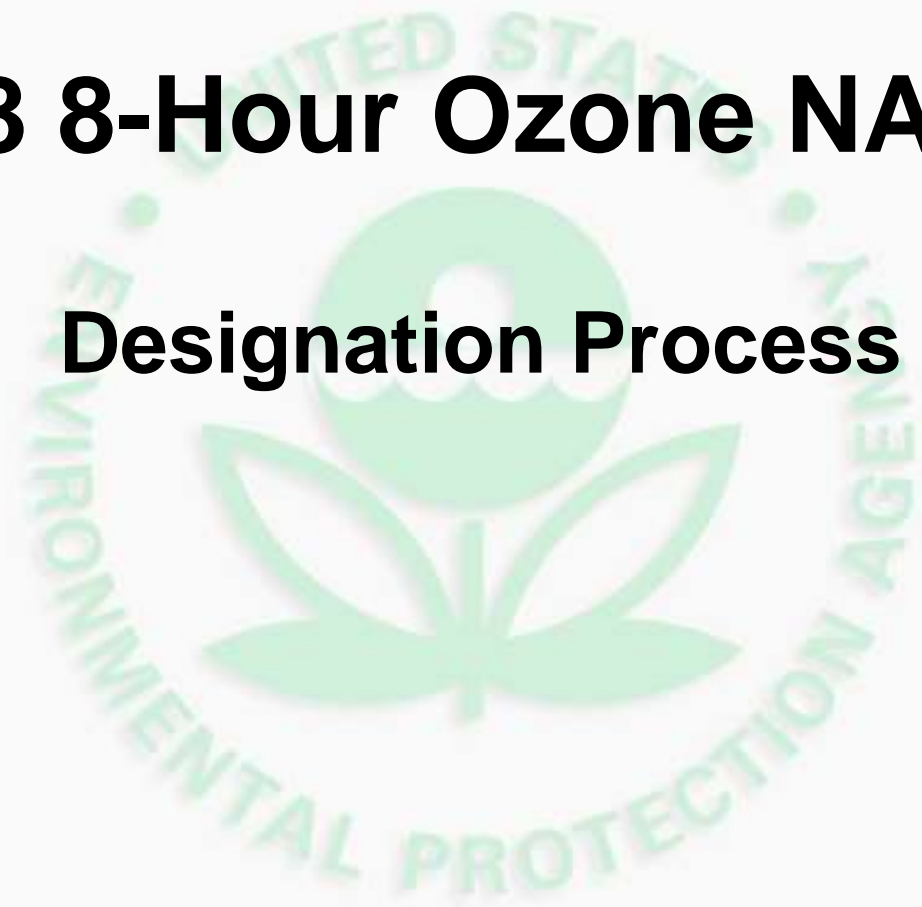
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2008 8-Hour Ozone NAAQS

Designation Process



2008 8-Hour Ozone NAAQS

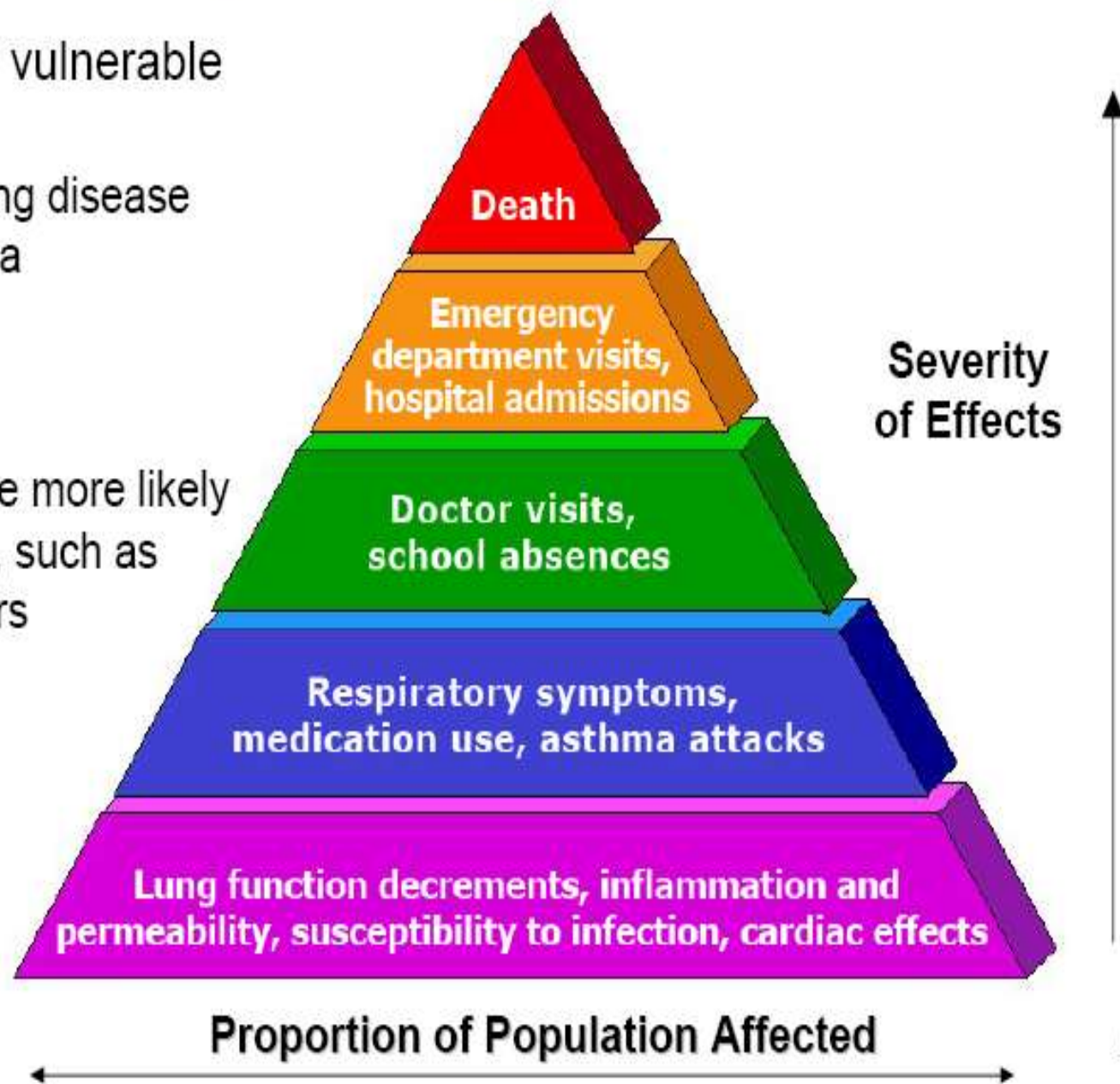


- 3/12/08 – EPA revised ozone primary & secondary standards
 - Lowered both standards from 80 ppb to 75 ppb
- 9/16/09 - EPA Administrator announced reconsideration of 75 ppb NAAQS
- 1/6/10 - EPA signed proposed reconsidered **primary & secondary** standards (published on 1/19/10)
- 9/23/11 – EPA announced that it would implement the 2008 NAAQS

Ozone Health Impacts: "Pyramid of Effects"

- Susceptible and vulnerable groups include:

- People with lung disease such as asthma
- Children
- Older adults
- People who are more likely to be exposed, such as outdoor workers



Anticipated Schedule for Ozone Designation Process for 2008 NAAQS



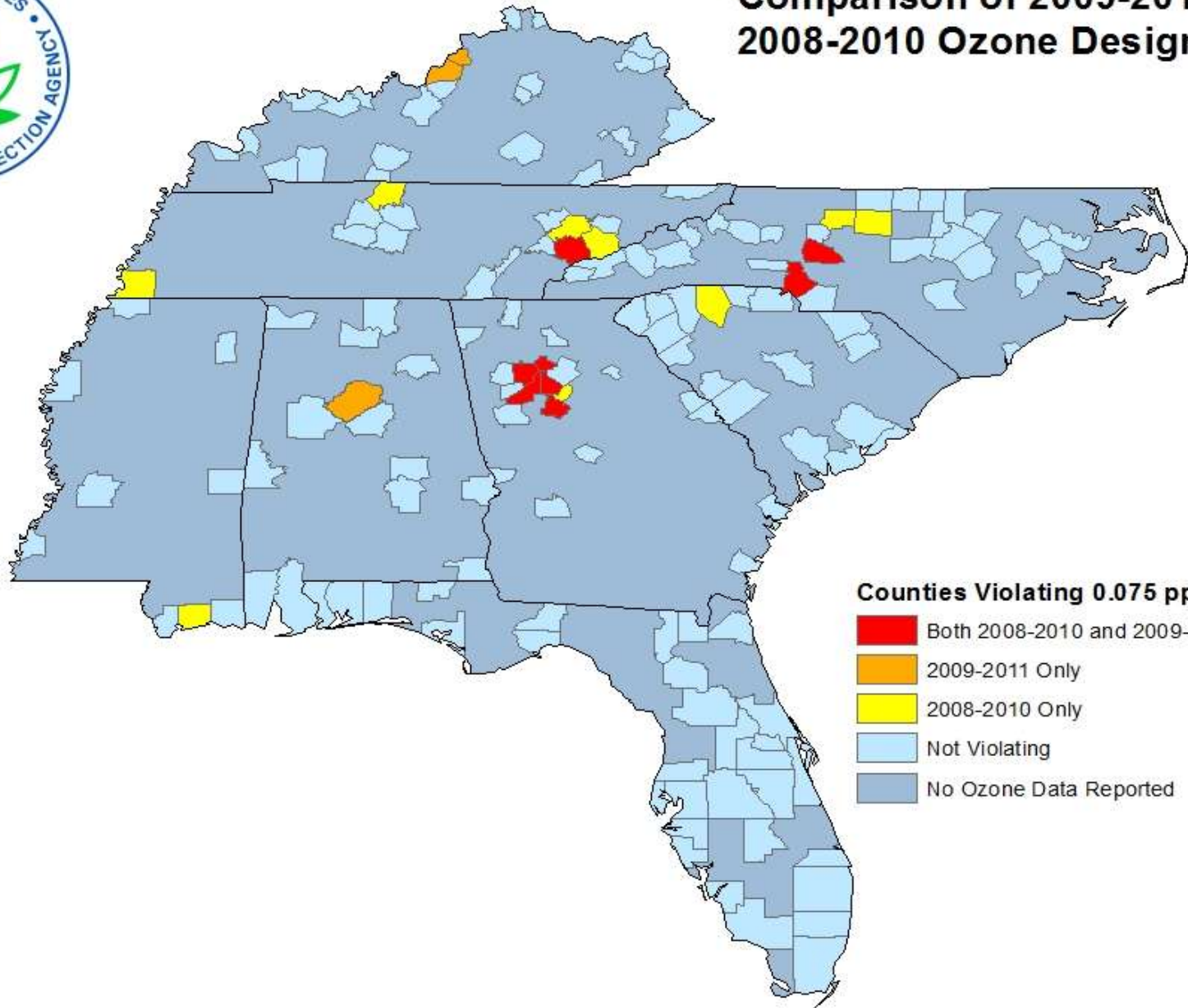
Milestones	Dates
EPA Administrator announces Agency will implement 2008 NAAQS	September 23, 2011
Regions to Provide EPA HQ with Preliminary Recommendations	October 14, 2011
States to Provide Update Recommendations (if they desire to do so)	October 28, 2011
Regions to Provide EPA HQ with Full Technical Analyses to Support Designation Recommendations	End of November 2011
Initiation of 120 Day Consultation Period [^]	December 15, 2011
Dates States Need to Certify 2009-2011 for Consideration	February 29, 2012
Final Designations	April 30, 2012*

[^] EPA will have a 30 day public comment process during this period as well.

* Monitoring data is due to be certified by May 1st of each year so designations prior to May 1, 2012, will consider 2008-2010 data and after May 1, 2012, will consider 2009-2011 data.



Comparison of 2009-2011 and 2008-2010 Ozone Design Values



Note: 2009-2011 design values are based on an incomplete year of data in 2011 and are subject to change

Map created by Daniel Garver, US EPA Region 4
Map created on: 9/22/11

Factors to Consider for Designations & Boundaries...



- Air quality data
- Emissions data (location of sources and contribution to ozone concentrations)
- Population density and degree of urbanization (including commercial development)
- Traffic and commuting patterns
- Growth rates and patterns
- Meteorology
- Geography/topography
- Jurisdictional boundaries
- Level of control of emission sources



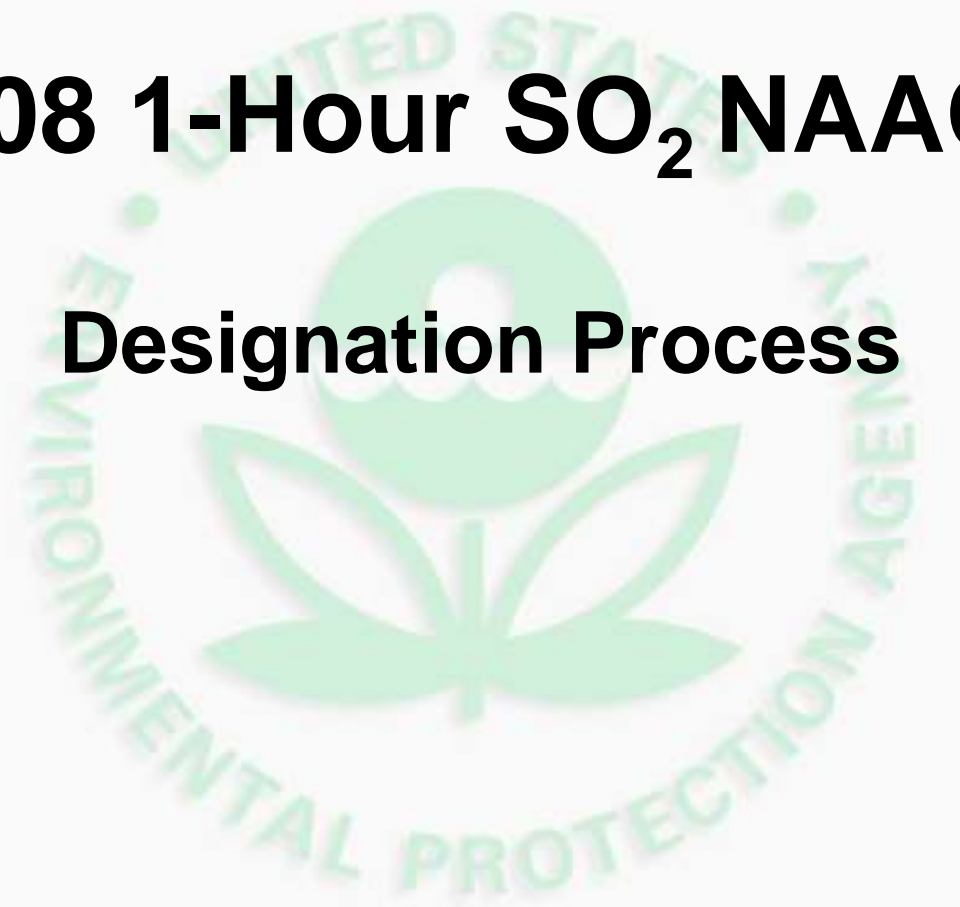
Long Range Next Steps



- Designations signed by April 30, 2012 (based on 2008-10 data)
 - States may certify their 2009-2011 data earlier.
- Nonattainment new source review (Applies on the effective date of designations-normally 60 days after publication)
- Transportation conformity (Applies 1 year after the effective date of designations)

2008 1-Hour SO₂ NAAQS

Designation Process



1-Hour SO₂



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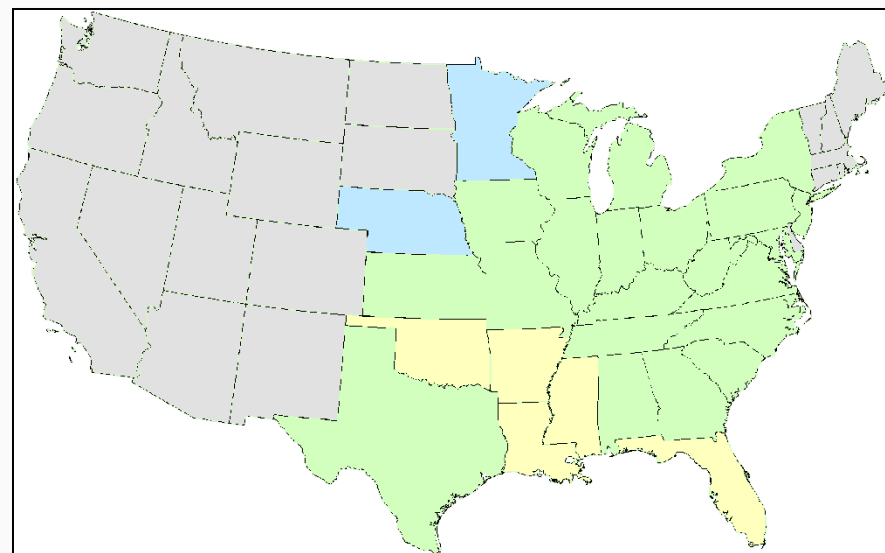
Cross-State Air Pollution Rule (CSAPR)



CSAPR



- On July 6, 2011, EPA finalized CSAPR
- Requires 27 states to significantly improve air quality by reducing power plant emissions that contribute to ozone and/or fine particle pollution in other states



- States controlled for both fine particles (annual SO₂ and NO_x) and ozone (ozone season NO_x) (21 States)
- States controlled for fine particles only (annual SO₂ and NO_x) (2 States)
- States controlled for ozone only (ozone season NO_x) (5 States)
- States not covered by the Cross-State Air Pollution Rule

*This map includes states covered in the supplemental notice of proposed rulemaking

- Replaces EPA's 2005 Clean Air Interstate Rule (CAIR)

<http://www.epa.gov/airquality/transport/>

Achieving Compliance



- To meet the requirements of this rule, EPA anticipates power plants will:
 - Maximize use of installed SO₂ and NO_x pollution control equipment, including running clean units more than would otherwise occur;
 - Use lower sulfur coal, switch fuels; or
 - Install or upgrade pollution control equipment, such as low NO_x burners or scrubbers (Flue Gas Desulfurization).
- CAIR will be implemented through 2011 compliance periods – CAIR then will be replaced by the Cross-State Air Pollution Rule for 2012.
- **January 1, 2012:** Cross-State Air Pollution Rule Phase 1 SO₂ and annual NO_x trading programs begin.
- **May 1, 2012:** Cross-State Air Pollution Rule ozone season NO_x trading program begins (Ozone season ends Sept 30).
- Cross-State Air Pollution Rule establishes new allowances for all programs
 - There is no carryover of Acid Rain Program, NO_x SIP Call, or CAIR allowances.

Estimated Annual Number of Adverse Health Effects Avoided Due to Implementing the CSAPR*



Health Effect	Number of Cases Avoided
Premature mortality	13,000 to 34,000
Non-fatal heart attacks	15,000
Hospital and emergency department visits	19,000
Acute bronchitis	19,000
Upper and lower respiratory symptoms	420,000
Aggravated asthma	400,000
Days when people miss work or school	1,800,000

*Impacts avoided due to improvements in PM_{2.5}
and ozone air quality in 2014

Proposed Amendments to CSAPR



- On October 5, 2011, EPA proposed revisions to the final CSAPR
- The revisions address:
 - Discrepancies affecting state budgets and assurance levels in FL, LA, MI, MS, NE, NJ, NY, TX, WI, as well as new unit set-asides in AR and TX
 - Revising allowance allocations to specific units covered by certain consent decrees that restrict the use of those allowances in AL, IN, KS, KY, OH and TN
 - Amending the assurance penalty provisions of the rule to make them effective beginning January 1, 2014, rather than in 2012, in order to promote the development of allowance market liquidity as these revisions are finalized
- Revisions will promote the development of allowance market liquidity and smooth the transition from the CAIR to CSAPR programs starting in 2012
- Revisions reflect new information with technical merit brought to EPA after the final CSAPR was published
- Deferring assurance provisions effective date would provide additional confidence and would not compromise the air quality goals of the program
- *Comments must be* received on or before November 14, 2011 unless a public hearing is requested in which event comments must be received on or before November 28, 2011

<http://www.epa.gov/airquality/transport/>